Australian Society for Limnology Inc.

NEWSLETTER

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AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology Inc. (ASL) is an association of over 500 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Material for publication in the March 1995 Issue of the Newsletter should be sent to the Editor (see back pages) before **31st March 1995**.

Long articles should be forwarded as unformatted text, preferably IBM-compatible disks or via the editors email address. Beware encoded emails as we have limited access to decoders. Formatted text may be sent from any commonly used word processing package (eg. Word) on a floppy disc.

Cover design forwarded by Keith Ferdinands....!!! *(thanks to the original artist)*

EDITORIAL

Well, another Editorial.... the thinness of this volume reflects the enthusiastic response from the vast membership list of ASL.

Huge congratulations to Dr Kath Bowmer (CSIRO) on taking home the prestigious Eureka Prize for environmental research (see article under Announcements). This issue also contains the first list of completed Honours, Masters and PhD theses with a limnological bent. This inaugural list comes from Prof. Angela Arthington, Faculty of Environmental Sciences at Griffith University, Queensland; thanks Angela. We hope to keep publishing more lists of completed theses so send them in.....

Occasionally Prattlebut, Scumour and Ruttle contains personal references that are only understood by a minority of members and may be misinterpreted by our overseas readers. While we don't wish to stifle the informality that characterises ASL, or inhibit contentious debate, we would like to suggest that all personal opinions or comments be clearly titled "Letters to the Editor" in order to minimise embarrassment to the author or the parties involved. Prattlebut is not the venue for expressing personal opinions and in future we should ensure that it be exclusively reserved for local information items.

Having said this though, we are delighted with the enthusiastic response to our requests for news items and Postcards From the Sedge by state representatives and trust that 1995 will be another year when ASLers use their Newsletter *(lining the garbage, scrap paper, budgie cages, wedging open doors, unsteady desks .....).*

DEADLINES FOR THE NEWSLETTER IN 1995

The following are the deadlines for ASL Newsletter Volume 33 (1995).

Volume 33	Deadline
March 1995 *No. 1*	31st March 1995
June 1995 *No. 2*	30th June 1995
September 1995 *No. 3*	30th September 1995
December 1995 *No. 4*	31st December 1995

FROM THE PRESIDENT

LIMNOLOGY IN 1995
WHERE NOW - WHERE NEXT?

1994 was a year in which all of the limnologists I communicate with regularly have been flat out not only with their pet limnological endeavours but also with the ever increasing pressures from our employers and peers to be more active in promoting water issues and in selling our science to whoever will buy. I think 1994 was a productive year for ASL in promoting our wares. Not only have we all been doing our individual bits, but there have also been developments which allow us to co-ordinate the bits more effectively. In the last newsletter I wrote of the initiative of the formation of the Biodiversity Council and ASL's participation in its formation and of the development of the "Australian Wetland Alliance"- both non government organisations aiming to keep the interests of biodiversity and wetlands on agendas in all arenas. The development of our 'list of experts' is another way in which the expertise contained within our membership can be made more accessible to the! decision makers.

So what can we do in 1995 to follow these directions further? We can use these avenues to help us air issues of concern rather than just waiting to be asked our opinions. ASL is now a member group of the Australian Wetland Alliance and their newsletter is an outlet for comments on issues (contact Roger Jaensch c/o wildlife research Unit, CCNT, PO Box 496 Palmerston NT 0831, Fax 089 221739). Ramsar sites , the 1996 Ramsar congress in Australia and The International Wetlands Meeting in Perth in 1996 are all areas of common interest.

The National Biodiversity Council was launched in December and it has a 12 member council. On behalf of ASL I acted as our representative in the nomination process and in the selection of a council which was balanced and representative of;

- a range of scientific disciplines
- a range of age and experience
- a range of skills and working styles
- a broad regional representation
- a variety of affiliations
- gender, and any other groups if possible.

This was a daunting and near-impossible task given the 95 nominations and the views of the many participating groups. It was certainly not a matter of each supporting organisation having a member! However with the able leadership of Margaret Blakers on the Founding Assembly I think we have achieved a remarkable balance with inland water interests well represented. Pierre Horwitz is the member appointed to represent inland water issues and Tim Entwisle to represent "lower things" including algae, fungi and monerans. Pierre and Tim will of course function as our links to the council and ASL members will function as their links to information in whatever areas we can contribute. Perhaps our "list of experts" can function as a start (add your name to It by writing to the secretary) or we could form an advisory group from the 10 or so other ASL members who were nominated but not appointed. (The full list of members of the council is appended).

So 1994 leaves us in a good position to feel positive about limnological issues in 1995.

If each of us (500+ members) achieves something limnological in 1995 and makes a comment on one issue through only one avenue we would increase our impact many fold. So go for it I wish you all an active 1995.

Margaret Brock

PRATTLEBUTT, SCUMOUR AND RUTTLE

NEW SOUTH WALES

University of New England

The warming of the moors has bought on a spate of field work for the UNE limnologists. Up in Ecosystem Management, Sandra Grinter has been cruising the northern State forests seeking sites for her riparian ravages, and working on bug samples from Dumaresq Creek for the local council. We await the arrival of Adrian Pinder to take up an APA(Industry) co-funded by the Department of Water Resources and Austeco to test a model of flow requirements of endangered NSW aquatic vertebrates and their food. Andrew Boulton obtained ARC funding to sample hyporheic invertebrates in gravel bed streams near Armidale and to investigate potential impacts of gravel extraction.

Several fourth year and Honours projects have commenced or will soon begin. Kim Harris is studying the interactions between Gambusia and tadpoles, Elyse Klupfel is investigating the limnology of Lake Manchester near Brisbane, Lachlan Copeland and Allana Finlen are doing environmental audits on fish, riparian vegetation, and invertebrates of streams in the Oxley Wild Rivers National Park, and Lynda Blunden will be assessing impacts of siltation on behaviour and survival of species of mayfly in the local region (co-supervised by Mary Notestine, Zoology). You will be able to see some of the results and study sites when you come through on the post-conference jaunt in September.

A new unit on Aquatic Ecology for second year undergraduates is being designed by Andrew Boulton, Margaret Brock and Rod Simpson to be taught in 1995.. Andrew and Margaret have recently returned from a filming session for a video they are making to support the unit. Look out for "From Swamp to Sea" in a video store near you!! Also, on the teaching front for 1995-6 is the writing of a textbook on Australian limnology.

Research on the botanical side of things is blooming in Botany. Farm dams are blooming and Annabel Douglas-Hill is spending her summer catching them in the act as part of her Diploma of Natural Resources project. Seed sorting from sediments is keeping a couple of students, Soolim Carney and Nunzio Knerr, in summer work. At last we have had some rain but even 125 mm in 36 hours is not enough to start to fill some of our temporary wetlands- maybe in autumn. Experiments on water level effects on wetland plant establishment are in full swing and Michelle Casanova and Geoff Smith seem to have designed their summer roles as the demonic forces imposing drawdown or floods on poor little seedlings. A new technician, Jill Divola will join the team in 1995. We

are all looking forward to a year of avoiding the less good and enjoying the good sides of our limnological lives.

BMPRL (Blue Mountains Private Research Lab

from: M. Dingley

Mike Dingley continues his research on the distribution of Australian Desmids. Sampling has so far been confined within NSW ponds, lakes, ditches etc. but interstate samples will be collected when time and money permits. High country (Kosciusko) and Far North Queensland sites are being planned (It's easy to dream!) as they should offer completely different taxa. If anyone has;

1. details of forthcoming grants
2. a need for a desmid taxonomist
3. money to burn

please let me know.

For those of you who are interested in Australian Desmids (and who isn't) I have completed a list of Australian desmids that have been published in the literature. This list is arranged alphabetically by genus and includes details of all references used to produce it. The list will be sent on IBM 3.5" diskette in Wordperfect, MS Word ASCII, Wordstar or AmiPro (you must inform me which format) for $40 including postage within Australia. Send cheques, payable to M. Dingley, to 28 Valley Rd, Hazelbrook, NSW 2779.

Murray-Darling Freshwater Research Centre

from: John Hawking

The Cooperative Research Centre for Freshwater Ecology's impact is being felt at "Mud-fric" with the construction of the new laboratory and the infux of staff. The Tasmanian deportee Paul Humphries has joined the "Flowing Waters Program" to investigate the impact of changed river flows on the river communities. He has been joined by Luciano Serafini, formerly with the DPI, Southern Fisheries Centre, Brisbane. Rob Cook (of chironomid pupae fame) has been appointed to work on Terry Hillman and Gerry Quinn's "Spatial and temporal variation in trophic structure of billabongs. The bugs in 10 billabongs along the Ovens River are in for a hard time over the next two years.

Mike Copland, ex-science teacher come Education Officer at the Centre, has been working with the TVA in the United States to introduce an International Exchange of school teacher/student water monitoring teams. He has commenced a pilot program in the Murray-Darling Basin to train the Australian

teams and has arranged for a group from Georgia USA to visit the Basin, Sydney and Canberra in March. The Basin teams will make the reciprocal visit to the Tennessee Valley in the September/October school holidays. The "Georgians" will be investigating billabongs, salinity, blue-green algae (things they have no knowledge of) and the water supply and sewerage outfalls of Sydney. The Basin group will be looking at how thw TVA organises the river as a major transportation facility and the generation of power using the river in conjunction with thermal, hydro and nuclear power generation. If you require any further details please contact Mike at the Centre.

Seats have been selling well through Bass's, MDFRC booking office, for the 7th Taxonomic Workshop (Crustacea, big & small), on the 8th to 10th February, with 75 people registered. The guest speakers are Russ Shiel (Rotifers, calonoids and copepods), Patrick DeDeckker (Ostracods) and Pierre Horwitz (Decapods et al.). John Hawking and Chris Humphry (OSS, Jabiru) will be involved in quality contro and quality assurance for the Monitoring River Health Inititive program and will be running a taxonomic workshop for the MHRI agencies immediately prior to the Crustacea workshop.

Rod Oliver and Barry Hart's team of Darling River biologists, Christine Rees (of Models Inc fame), Mark Fink, Mark Grace and Tracy Hislop have just returned from another of their monthly trips to the Darling. Over the past year they have been monitoring the distribution of algae at Bourke and 100 km downstream. The Darling River has currently ceased flowing and coupled with this the salinity level in a section downstream of Bourke has increased, lowering the turbidity and increasing algal production. Another good year for the old blue-greens. Mark Wood (now Dr) has completed the second year of experiments on one of Rod Oliver's other projects "nutrient limitation of algal growth: physiological assays and chemical analysis". They are developing a new bio-assay for nutrient limitation for microalgae, which is working in cultured microphytoplankton and is currently being tested in the field.

Jackie Dickson has completed her ABRS grant with Russ Shiel and has moved to LaTobe University (Wodonga) to commence a PhD on the "Taxonomy, biogeography and ecology of Australian Chydoridae: Cladocera" with Roger Croome and Russ Shiel as supervisors.

QUEENSLAND

from: Bob Congdon

James Cook University of North Queensland

Aquatic research in NQ has been hampered recently - by the lack of water (as well as other duties common to other institutions). Townsville is into its third consecutive year of below-average rainfall, with little more than 20 mm falling since March. The city is now supplementing its water supply with water from the Burdekin Dam. We are hoping for a good Wet, but it looks as though we will have to rely on a cyclone to counteract the effects of El Niño.

The lack of rain has not hampered teaching activities, however. The Zoology Department now offers a BSc major in Aquaculture, covering principles and practices, foods and nutrition, propagation and stock improvement, and system design and management. Plans are underway to introduce a four year Bachelor of Applied Science in Aquaculture, from 1996. On the research front Norm Milward and his postgrads are concentrating mainly on the redclaw crayfish and a few finfish, including barramundi and mangrove jack, while Trevor Anderson's group (including students who transferred with him from Deakin) is adjusting to thermal shock and gradually making the switch from temperates, such as golden perch, to hot species, like the barramundi. Trevor has been busy expanding the aquaculture infrastructure on campus to improve the facilities for experimental research and undergraduate training.

In the Department of Botany and Tropical Agriculture, Dilwyn Griffiths continues to make sense of the cyanobacterial blooms in the Solomon Dam, which supplies water to the community on Palm Island. Sampling sometimes has to compete for the use of the Council's boat with other, more pressing, activities like day-long fishing trips! The pattern of recurring blue-green algal blooms was relieved in May-June of this year by a bloom of Volvox. Careful management, including artificial aeration, slow sand filtration and treatment with powdered activated carbon, has maintained water quality at an acceptable level. The project, a joint QDPI-JCU project has been in operation for a year and has employed Mia Thurgate as Research Assistant.

George Lukacs and Bob Congdon continue their LWRRDC-QDPI funded study of an artificial wetland system for "filtering" agricultural runoff from the Burdekin River Irrigation Area. *Schoenoplectus validus*, *Phragmites communis*, *Nymphaea gigantea* and *Ottelia ovalifolia* were transplanted into 4 channel- shaped wetlands designed by QDPI engineers, and all are growing well. Monthly growth measurements commenced in September but it is too early to draw any conclusions. George Rayment and Heather Hunter (QDPI)

have also commenced water quality and sediment sampling at the site, with samples being sent to Brisbane for analysis.

Things are very busy in the Australian Centre for Tropical Freshwater Research (JCU) with a variety of projects underway. Jacqui Nolen is busy running around the wet tropics monitoring water quality and collecting invertebrate samples of third order streams; Barry Butler is also terrorising the driving public in the wet tropics while monitoring the impact of tourists on recreational sites (tough job - Mossman Gorge, Paluma rainforests, Babinda Boulders etc.); Alex Kutt and Steve Skull have been climbing all over the wet tropics looking at the impact of a new powerline; Niall Connolly has been busy constructing artificial streams; Paul Clayton (remember Mr Dunder?) is in the death-throes of completing his Ph.D. on waterfalls; and John Faithfull has been writing up the limnology of Lake Proserpine. Imagine if/when the drought breaks, how busy they'll be!

Limnologists at the Centre for Catchment & In-stream Research (Griffith University), Walkamin Fisheries Research Centre, and School of Applied Sciences (University of Central Queensland) must have plenty of news for the next newsletter, as they have been too busy to provide information for this one - perhaps they have received some rain in their neck of the woods! If there are any other limnologists in Queensland, you can let us know of your activities by contacting Bob Congdon at the address given in the back of the newsletter!

NORTHERN TERRITORY

from: Michael Douglas

As the wet season really gets into full swing and filled with early reports of flooding and record rainfalls, it is with great pleasure that I remain indoors. After spending the last few sweaty months conducting riparian vegetation surveys I am happy to say that my field work is now over. I am now looking forward to finishing off the sorting and id's and getting stuck into the writing. If things go to schedule (and they're already four months behind) then this may be my last report from the NT for a while as I head back to Monash to write up.

It was with sense of sadistic pleasure and *deja vu* that I received this report form Cyrus Edwards, facing his first wet season for his masters project based at Bachelor, looking at the impact of Rum Jungle Mine.

> "The east Branch of the Finniss River started flowing through Rum Jungle Mine in Mid December. I am presently trying to dig myself out of the mountain of pre-christmas samples and have begun having macroinvertebrate nightmares again. A lone crocodile sighting upstream of the mine site will have me looking over my shoulder during the next sampling period in February. My first wet Season! If the rain persists I may have to trade the quad motorbike in for a boat to get to my sampling sites. With water levels making future sampling routines both dangerous and impractical, I may finally get a chance to get on top of my work. At least the rain is a pleasant change from the stifling buildup of the past few months."

NT Power and Water Authority

from: Simon Townsend

As always, Waterweek was a highlight to our social calendar, and Water Resources Division played an active role. We organised displays and demonstrations in the city mall and held a field demonstration day at a local Darwin stream; Rapid Creek. Also as part of Water Week, we held a public seminar on the Impact of Fire on Stream Water Quality. Garry Cook (CSIRO) Michael Douglas and Simon Twonsend presented preliminary results from the Kapalga Fire and Water project. The event was well attended and generated discussion on this controversial topic however, the real highlight was the abundance of iced carrot cakes and giant lamingtons available afterwards.

Michael Lawton returned from an International Symposium on Ecology and Engineering organised by the University of Technology Malaysia and the Centre for water Resources, University of Western Australia. The symposium was held in the mountains at the Taman Negara Resort, and Michael presented a paper with Ross Jeffree and John Twining (ANSTO)on the rehabilitation of Rum Jungle Mine.

Jane Suggit, Rodney Metcalfe, Armando Padovan and Shane Griffiths have been working continuously for the last four months conducting sampling for the Monitoring River Health program. After risking dehydration, crocodiles and more recently, tropical cyclones and flooding; they have managed to sample all of the major catchments in the Top End. Now they just have the arid region left, and given the recent downpours in the centre, there should be plenty of sites to choose from!

Environmental Research Institute of the Supervising Scientist

from: Chris Humphrey

Apart from the details of the March workshop on Wetlands in northern Australia (see Page 29) not much new to report since the last newsletter. Some staffing changes/additions going on - unresolved as yet but will keep you posted. Significant changes to the entire ERISS Wetland Management programs are anticipated following the March workshop.

The ERISS creekside monitoring program is drawing to a close after 6 years of R&D. Protocols using larval fishes and freshwater snails will be passed over to Ranger (Uranium Mines) with suitable technology transfer. The company seems willing to incorporate this form of monitoring now in its compliance program. Ian Brown, the mainstay of the creekside program has recently resigned from the Institute. We wish him all the best and thank him for his excellent contribution over the past 6 years. Cheers Brownie!

Macroinvertebrate projects are ticking along. A couple of student projects will commence within the next few months. Details will be forthcoming. Two final-year science students from Uni New England, Bill Macfarlane and Lynda Blunden, will be with us for the next couple/few months under our work experience scheme. They're undertaking a small project on quality control for rapid bioassessment approaches using macroinvertebrates. After their northern stint, they'll return to UNE to undertake Honours projects under the enthusiastic supervision of Andrew Boulton (Ecosystem Mananagement).

James Boyden recently spent 2 weeks in PNG on an exchange visit with environmental staff at Ok Tedi Mine on one of their luxury fish sampling/monitoring cruises on the middle Fly River. On the intensive 10-day cruise James participated in gill net and rotenone sampling at regular monitoring sites. There were a few overwhelming catches that kept the team up till very late weighing, measuring, tissue sampling and sorting through the large piles of boney bream to separate two virtually identical species, *Nematalosa flyensis* and *N. papuensis*. Towards the end of these days James discovered how the river got its name - Nally bins of fish developed an unusually potent odour and were swathed in a swarm of flies. Perhaps in future there will be fewer complaints about our visual fish counting procedure in clear fronted canoes. Bob Pidgeon has dreamt up a way of reducing his counts of migrating fish by more than a half. This should then give him time to look at other streams to see if he can determine why the Magela migrations are so spectacular compared with other systems.

LETTERS TO THE EDITOR

Ideas on Australian universities, their performance in teaching and research, and implications for limnology

I have survived my first year back as a university academic, after seven years in the cosy and sheltered bosom of CSIRO. My change in jobs affected my perspective on teaching, scholarship and research, and I will ask your forbearance in sharing my opinions on the current condition of Australian universities and the influence these factors have on the country's limnological research effort.

My first year 'at the coal face' of undergraduate teaching left me with a deep foreboding regarding the condition of our universities. My own experience, reinforced by my comparing notes with academics at a wide range of other tertiary institutes, leads me to believe that Australian universities are in dire straits. Universities have been reduced to mere teaching factories, which must push through as many graduates as possible at the lowest cost. "Never mind the quality, just feel the width", as my tailor would say. Any distinction between TAFE-style institutes directed towards narrow vocational training and universities offering a comprehensive, broad, liberal, education has been lost utterly. Today's universities lack both compass and rudder. They lack a compass to give them the right direction, and a rudder to effect that direction. They don't, or more accurately can't, provide a robust education to the vast numbers of students that it is demanded must be processed. In my own institute, for example, the "recommended" teaching load is 12 hours per week, or about 300 contact hours per teaching year; by dint of concessions, I got my load down to a mere 143 lectures/tutorials last year. How it is anticipated that I provide a quality coverage of my subjects under this onerous load is beyond me!

Not only is it impossible for academics to provide a wonderfully mind-expanding education to our students, but it seems that there is little incentive to even attempt to do so. Indeed, I'd go so far as to say that the general Feeling of the Age demands that we do not. Once I thought the nadir of the current university system was illustrated by the ubiquitous MBA degree. It is hard to conceive of a more illiberal topic for a bona fide university degree than one of these glorified business courses. Yet, clearly, that is what is wanted by the general public. That is what passes today for a university degree. Now, however, I am even more disappointed with the depth to which the university system has sunk. Recently, I noted a university offering a degree in golf course management. Another institute has opted for naturopathy. What next: Aromatheraphy with Honours in Basket Weaving and Tarot card Reading?

How is it that our once treasured universities got into this predicament? The rise of managerialism as the guiding principle by which they are run seems a most likely culprit. The pervasiveness of this management technique is manifest where ever one looks in today's universities. The stupidity of universities providing Mission Statements is typical; can anyone envisage a more vacuous activity than this listing of self-evident platitudes? It is one thing to develop a finely crafted argument for the position of the university in the wider world; it is quite another to use simplistic

slogans as a political tool. And we are constantly told that we must provide a service for our "customers", or "clients", or "end users", or "stake holders", or what ever other fashionable term comes to hand. I am appalled that my students should be downgraded to mere consumers. Consumers they may be when they buy their jeans; when it comes to the vastly more important process of education, they are citizens, and therein lies a whole difference.

Where else is there evidence of this managerialist perversion? Well, in the first 40 pages alone of today's copy of The Age (3 December 1994) there are 29 advertisements for various university courses. The Saturday Extra had another swag of them, but by the time I'd got to that section I was too dismayed to count any further. It is pitiful that as much effort isn't put into enhancing facilities for undergraduate teaching and postgraduate supervision as is put into these forays into private-enterprise-inspired competition. Another example: universities are aflood with more and more (highly paid) senior administrators, all peddling the managerialist line, and from my sheltered perspective at the bottom of the pile, this expansion seems inconsistent with the massive devolution of administrative responsibilities to academic staff.

What does all this have to do with limnology? A lot, since I believe that if we don't get our universities in order, we have no hope of getting our research and thus our limnology in order. A good one-quarter, maybe one-third, of all talks at annual ASL conferences are given by university students, and a quick glance at the membership of our Society indicates the numerical importance of university staff. If you doubt this, look at the Society's Executive; the immediate past President, current President, and Vice President are university staff. So, the sad and sorry state of our universities can only have but sad and sorry implications for our country's limnology. If the true role of the universities is misunderstood, if the academic milieu is watered down with pathetic courses, if academic staff are burdened with inappropriate and time-wasting administration, by onerous teaching loads, and by a senior management that places scholarship and research way below the churning out of more and more less and less skilled undergraduates, and if the whole university sector is subject to a completely inappropriate model of management, what hope is there that even a little bit of good research can squeeze its way in? I won't even raise the possibility that some of this research might be fundamental in nature, and not directed immediately to some narrow (usually, private sector) interest group. What hope is there that we can deliver the high quality undergraduate teaching and postgraduate supervision that we are capable of, and dearly wish to give?

These negatives aside, do I have any worries about joining the seemingly intolerable world of the university? Not one! Some right wing loopies refer to universities as Ivory Towers; I prefer to think of them Pillars of Society and it an honour to be called to work in one. It is an oddly pleasurable job. It is hard to describe, for example, the joy at seeing a student wrestle with, and finally conquer, a difficult idea during a tutorial. How can one remain unmoved when your student hands in her Honours thesis, she all exhausted and filled with trepidation, or be unmoved by your PhD student rushing down the corridor with the results of an experiment that "worked" for a change? The elation at seeing your students "out there" in the work place is wonderful. Last night, in one of the more salubrious parts of Chinatown, an Honours

student I co-supervised ran up to me and told me of her new job working on heavy metal pollution from a mine site. I felt privileged to have had even a minor role in her education.

It's not only the students who benefit. My horizons have broadened markedly, which I guess has had something to do with having to teach all second year and all third year microbiology, plus have fingers in marine biology subjects and course work for the Honours program. And it's not just within the narrow confines of boring old microbial ecology that my experience has been widened. It is likely that I still would have read Robert Hughes' "Culture of Complaint" had I not taken up a university job, but it is unlikely that I would have confronted Allan Bloom's "The Closing of the American Mind", nor Robert Edgerton's "Sick Societies". It is precisely this broadening of one's reading, perspectives and scholarship that makes a university life so appealing. Indeed, looking back to my undergraduate days in the mid 1970s, I can say that I was forever changed by my university education. It opened a whole new world. I just hope that my students can enjoy the same luxury. Maybe I'm just a Romantic, maybe just a dinosaur.

Paul I. Boon

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ARTICLES

ARE WE COMMITTED TO TEACHING AND RESEARCH IN LIMNOLOGY? JUDGE FOR YOURSELVES

In the last issue of the ASL Newsletter Paul Humphries used his Tasmanian report to attack the Department of Zoology at the University of Tasmania and its staff. In essence, he accused the Department of a lack of commitment to limnology and to one of its lecturers, Leon Barmuta. He also went on to suggest that we should be pushing for a full Department of Limnology and even suggested that things would only improve with the retirement (or death!) of some of the current staff of the Department.

This Department has always been open to constructive criticism but Paul's attack was misdirected and not based upon facts. For the benefit of members of ASL who are not familiar with the Department of Zoology at the University of Tasmania, it is appropriate that I respond.

- The University of Tasmania is the only tertiary institution in Tasmania and, therefore, the Department of Zoology has an obligation to provide undergraduate and postgraduate training and to conduct research in a wide range of topics given the special zoological characteristics of the island state. The Department has always been active in limnology at all levels but it cannot ignore other zoological areas.

- Six of the current 12 staff of the Department are members of the Australian Society for Limnology and the current research programs of most of these staff include some aspects of freshwater systems.

- Over 20% of the Department's 100 most recent research publications are on limnological topics. The same is true of 25% of the 20 most recent higher degree theses and 30% of the 60 most recent Honours theses.

- Limnology is available as 25% of the third year major zoology course in the Department.

- Coincidentally, on the same day I received my copy of the ASL Newsletter containing Paul's attack, I sat on an appointments committee which awarded Leon Barmuta a further five year contract in the face of competition from many other strong candidates. I would have much preferred this to have been a tenured rather than a contract position. However, this Department and University remain constrained by Federal Government policy which restricts the proportion of tenured staff to no more than 80% of the total.

- Staff and graduate students of the Department have, over many years, been involved in cooperative work with the Tasmanian Inland Fisheries Commission.

I hope that the facts given above dispel any doubts about any lack of commitment to limnology by this Department.

Dr Rob White
Head, Department of Zoology
University of Tasmania
E-mail: rob.white@zoo.utas.edu.au

60 MINUTES

ASL executive meeting by teleconference, 30 Nov 1994.

Present: M.Brock, R.Marchant, (F.Sheldon, by invitation); P.Boon and L.Barmuta by phone afterwards.
(This meeting was called at short notice to resolve a number of urgent matters and it was not possible to contact the regional executive members in time).

1. Editorial policy for the newsletter: according to the present and past editors problems are really only likely to occur in the "prattlebut" section (as occurred in the last issue of the newsletter). The executive agreed that there should be nothing libellous, sexist or racist. It also felt that opinions should be presented as letters to the editor rather than as part of "prattlebut". F.Sheldon (current editor) will cover these matters in an editorial for the next issue of the newsletter. Particularly difficult issues would have to be handled with advice from the executive.

2. Wetland alliance: the society has been asked to join this group. No joining fees are envisaged at this stage. The executive felt the ASL should join this group and M.Brock volunteered to deal with correspondence.

3. Biodiversity council: this 12 member council was appointed recently (see last newsletter for more details) and two of the society's members have been elected: Pierre Horwitz representing inland aquatic interests and Tim Entwisle representing lower biota (algae, fungi, bacteria). These two are not representing the ASL on this council. Nevertheless the executive is pleased that freshwater concerns will be addressed by the council via these two.

4. LWRRDC workshop: LWRRDC has asked ASL to organise a workshop on biomanipulation to which overseas practitioners would be invited. The executive agreed that ASL could not do this at its next congress (Sept 1995) as a result of previous commitments. It was suggested that such a workshop could be arranged for the 1996 International Wetlands Conference in Perth. Subsequent discussion (after the teleconference) resulted in a suggestion that such a workshop be held in Adelaide in 1996 in conjunction with an ASL congress. This suggestion has been sent to LWRRDC by M.Brock.

5. FASTS: no FASTS executive member has yet been invited to an ASL meeting as was discussed previously by the executive. An invitation will be sent early in 1995.

CONFERENCE CAPERS

AUSTRALIA 1995

- **Ecological Society of Australia**, 27th to 29th September 1995, University of Tasmania, Hobart. Details in next Newsletters.

- **MODSIM 95, Congress of the Modelling and Simulation Society of Australia**, 27-30th November, University of Newcastle NSW. Information from the Internattional Congress Sectretariat: Dr Philip Binning, Dept. of Civil Engineering and Surveying, University of Newcastle, NSW 2308, Australia. email: modsim95@newcastle.edu.au

- **The XIIth Australasian Society for Phycology and Aquatic Botany**, 7-9th July 1995, Anchorage Village Resort, Stradbroke Island, Brisbane. Closing date for Abstracts is 1st May 1995. Further details from Frances D'Souza - Ph (07) 286 8270, email: frances.dsouza@qld.ml.csiro.au OR Michele Burford - Ph (07) 286 8236, email: michele.burford@qld.ml.csiro.au. Fax: (07) 286 2582. Sessions on: biotechnology, taxonomy, impacts of nutrients, primary production, reproduction, trophic dynamics, ecology, physiology and toxicology.

- **Wetlands for Water Quality Control**, September 1995, James Cook University (see flyer enclosed in this issue of the ASL Newsletter)

OVERSEAS 1995

- **XXVI SIL International Congress**. July 23-29th 1995, São Paulo, Brazil. Registration was due 31st December 1994. Information from Raoul Henry (General Secretariat), University of São Paulo - UNESP, Dept. of Zoology, Institute of Biosciences, C.P. 502 18618-000 - Botucatu - SP - Brazil.

- **Interactive Environmental Effects on Forest Stands, a travelling summer workshop in New Zealand**, 5-13th February, 1995. Information: David Whitehead, New Zealand Forest Research Institute, PO Box 31-011, Christchurch, New Zealand; Ph: 64-3-351 7099, Fax: 64-3-351 7091. email: whitehd@lan.lincoln.cri.nz

- **5th International Conference on Acidic Deposition**, 26-30 June 1995, Gothenburg, Sweden. Information: Peringe Grennfelt, Swedish Environmental Research Institute, PO Box 47086, S-40258 Göteborg, Sweden.

- **Global Changes and Geography: summit conference of the International Geographical Union**, Moscow, 14-18 August, 1995. Information: Prof V. Kotlyakov, Institute of Geography, Russian Academy of Sciences, Moscow 109017, Russia. Fax: 7-095-230 20 90.

- **Vth International Congress of Systematics and Evolutionary Biology**, Budapest, Hungary, 18-24 August, 1995. Information: G. Vida, Növényrendszertani és Ökologia Tanszék, Eötvös Loràand Tudomàanyegyetem, Kun Béla tér 2, 1083 Budapets, Hungary.

- **Multidimensional Approaches to Reservoir Fisheries Management** organised by the American Fisheries Society, to be held in Chattanooga, Tennessee, June 12-14, 1995. Deadline for submission of abstracts is 1st March 1995. For further information or to submit an abstract, contact: Steve Miranda, Mississippi cooperative Fish and Wildlife Research Unit, P.O. Drawer BX, Mississippi State, MS 39762. Fax USA (601) 325-8726.

- **8th International Symposium on Trichoptera** to be held at Minneapolis, St. Paul and Lake Itasca, Minnesota, 9-15 July 1995. Total costs for regular participants staying in University housing will be approx. $US 407 - includes room, meals, transportation, reception. program and abstract book. Deadline for registration and submission of abstracts is 1st March 1995. For further information and registration materials contact: Ralph W. Holzenthal, Department of Entomology, 219 Hodson Hall, 1980 Folwell Ave, University of Minnesota, St. Paul, MN 55108. Fax USA (612) 625-5299. email: holze001@maroon.tc.umn.edu

- **8th International Conference on Ephemeroptera & 12th International Symposia on Plecoptera** to be held at Château d'Œx, in the Swiss Alps between Lausanne and Frigourg. There will be a mayfly conference on 14-17th August, a joint mayfly-stonefly symposium on 18th August and the stonefly symposium from 19-20th Ausgust. For further infomation contact Mayfly-Stonefly Congress, Museum of Zoology, PO Box 448, CH-1000 Lausanne 17, Switzerland. Ph 41-21 312 83 36; Fax 41-21 323 68 40.

AUSTRALIA 1996

- **Sixth International Behavioural Ecology Congress.** Canberra. 29 September to 4 October. Information: isbeo@anu.edu.au, or to ISBE6, Attention Andrew Cockburn, Division of Botany and Zoology, Australian National University, Canberrra ACT 0200 Australia.

- **Ramsar Convention** to be held in Brisbane from 19-27 March 1996. The conference will celebrate the 25th anniversary of the meeting in the Iranian town of Ramsar where the conference text was agreed. See the article by Max Finlayson in the "Articles" section of this newsletter. Further information on the Convention is Bill Phillips from ANCA in Canberra - Fax 06-2500384, phone 06-2500777.)

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ANNOUNCEMENTS

1994 Eureka Prize for Environmental Research

Dr Kath Bowmer

The Deputy Chief of the CSIRO Division of Water Resources, Dr Kath Bowmer, has accepted the prestigious Pol Eureka Prize for Environmental Research, announced 23 November 1994 on the ABC science program *Quantum*.

Kath Bowmer was nominated for her research on the management of aquatic pest plants and the off-site impacts of irrigated agriculture; control strategies developed by her some years ago are now being used to control the potentially devastating alligator weed.

The span of her research interests, however, is much broader. Kath initiated algal research in the CSIRO well before algae became a major resource management issue and until July 1993 was involved with CSIRO's multi-divisional blue-green algae research program. She has also been responsible for research into pesticides in water, the use of wetlands for effluent treatment, and the value of native plants as central features of aquatic ecosystems and their use in maintaining water quality.

Well done Kath Bowmer, from all ASL members!!

For those who don't know *--- the Eureka Prizes were first presented five years ago by the Australian Museum together with the ABC and POL Publishing. Since then, with additional support of the New South Wales University Press, the Department of Employment, Education and Training and the Department of the Environment, Sport and Territories, a further two Eureka Prizes have been established.*

NATIONAL BIODIVERSITY COUNCIL

- Members -

Member	Expertise	Address
Prof Andrew Beattie	invertebrates	Macquarie Univ, NSW
John Bradsen	law	Univ of Adelaide, SA
Dr Tim Entwistle	lower plants, fungi	Botanic Gardens, Vic
Prof Bob Hill	plant ecology, palaeoecology	Univ of Tas, Tasmania
Dr Pierre Horwitz	inland aquatic	Edith Cowan Univ, WA
Prof. Roger Kitching	invertebrate ecology	Griffith Univ, Qld
Dr Gary Poore	marine systems	Museum, Vic
Dr Hugh Possingham	ecology	Univ of Adelaide, SA
A/Prof Harry Recher	ecology, birds	UNE, NSW
Dr Deborah Rose	ecology, aboriginal information	NT
Dr Dennis Saunders	birds, mammals, ecology	CSIRO, WA
Dr Judy West	botany	CSIRO, ACT

BOOKS OF INTEREST

Elliott, J.M. **Quantitative Ecology and the Brown Trout**, Oxford University Press, 286 pages.
Hardback £35.00, Paperback £14.95

- The first synthesis of quantitative information on the ecology of the brown trout
- Based on Elliott's long-term studies in the field
- Provides a succinct summary of the value of such studies to conservation and management
- Draws conclusions relevant to general animal ecology wherever possible

Covering not only brown trout, but also their close relatives, this book provides valuable information which is also relevant to animal ecology.

The book highlights the global success of the species and provides a long-term case study of population dynamics of one population. It also considers growth, energetics, ecological differences between brown trout populations, natural selection and genetic differences between brown trout, and the mechanisms responsible for population regulation in juvenile trout.

Emphasizing the value of such long-term studies to species management and conservation, the book stresses the importance of development, testing and use of realistic models when considering species such as brown trout.

1994 TYLER PRIZE

Tropical Rain Forest Protectors

LOS ANGELES - For their efforts to understand and protect tropical rain forests, two North American botanists have won the nation's top environmental honor -- the Tyler Prize for Environmental Achievement.

Arturo Gomez-Pompa, Ph.D., a professor of botany and plant sciences at the University of California, Riverside, and Peter Raven, Ph.D., director of the Missouri Botanical Garden, St. Louis, will share the 1994 Tyler Prize. In addition to dividing a cash award of $150,000, the pair will receive gold Tyler Prize medallions.

Dr. Gomez-Pompa, 60, an internationally respected botanist and ecologist, is recognized as one of the first voices to draw attention to the problem of rain forest destruction, both in his native Mexico and in the world as a whole. He has pioneered studies of rain forest regeneration and of the agricultural methods of native peoples and has devised ways to enlist these people in the cause of forest preservation.

As Mexico's most prominent voice for conservation, he has been effective both as an informed critic of government policies and as an adviser working within government to preserve Mexico's biological heritage. He has created new initiatives and institutions for science, conservation and education that serve as models for nations with limited governmental resources for environmental protection and large populations of low-income people living in endangered tropical regions.

Dr. Raven, 58, a leading specialist in the study of plant evolution, was codeveloper (with Paul Ehrlich) of the theory of coevolution and an early exponent of the concept of biodiversity. Tyler laureate Thomas Eisner calls Raven "the world's greatest living botanist" for the body of detailed observation and powerful theory he has contributed to the discipline.

Raven has crisscrossed the globe to protect endangered tropical biosystems in areas as diverse as South and Central America, Africa, Madagascar and China. Even in Russia, he helped to preserve a vast historical collection of plant specimens of global importance.

"No two individuals have done more in helping us to understand the complexity and interdependence of the tropical forest ecological systems, and no two individuals have done more to protect them," noted Robert P. Sullivan, Ph.D., chair of the 11-member Tyler Prize Executive Committee, which annually selects the winners. "These two scientists are in large measure responsible for

the world's growing awareness that tropical rain forests are irreplaceable reservoirs of biological diversity."

The Tyler Prize was established in 1973 by John Tyler, founder and longtime chief executive officer of the Farmers Insurance Group, and his wife Alice. Both life-long lovers of the outdoors and the natural world, the Tylers hoped that by creating an internationally significant honor to recognize achievement in the fields of environmental study and environmental protection, they could help focus world attention on environmental problems and motivate effective action toward solutions.

Alice Tyler organized and financially supported the prize after her husband died in 1973. The first Tyler Prizes were awarded, in 1974, to Arie Jan Haagen-Smit the Caltech scientist who first described the mechanism of photochemical smog; ecologist G. Evelyn Hutchison; and United Nations Environmental Programme founding director Maurice Strong.

From 1981 through 1993, the University of Southern California administered the prize in cooperation with Alice Tyler. After Mrs. Tyler died last year, an endowment was established at USC to fund the Tyler Prize in perpetuity.

Founded in 1880, USC is the oldest and largest private research university in the American West.

AUSTRALIAN BIOLOGY OLYMPIADS

Dear ASL Members

I hope that when you read the information below that you will be prepared to lobby the ministers listed below to change the recent government decision on funding the Science Olympiads. It is vital that as scientists concerned for the welfare of Australia, we act now!

Australian Biology Olympiads

The Biology Olympiad Bursaries fund was established by the Victorian Cell Biology Society in 1994. Australian Biological Societies, Tertiary Institutions and Companies involved in scientific areas were able to provide 4 bursaries, each worth $500 to the four team members competing in the International Science Olympiads in 1994. Donations will be sought annually to build up the fund for future years after the problem of government funding is resolved.

The Australian team earned three bronze medals in a very high standard competition. Australian team members, Amy Warren, from Brisbane, along with Katie Bergamaschi and Lachlan Rose, both from Sydney, each won bronze medals after completing theoretical and practical examinations lasting three and a half hours each. Stephen Rose, from Sydney, just missed out by a very small margin from receiving a medal. The 1994 Australian team achieved comparable raw score marks to the unprecedented results of the 1993 team.

Dr John Dearn, the Australian deputy leader, said "Australia will need to at least maintain the current level of commitment to the selection and training programs to remain competitive as every nation in the competition continues to improve the preparation of their national representatives".

Lobby for Science

Society members should lobby the Prime Minister and the Minister for Science so that the Federal Government continues to provide support for training students for the Science Olympiads. The Government invested $7 million dollars in the recent Commonwealth games and $350,000 for the 1994 Science Olympiads!

Write a letter today to try and redress this ridiculous imbalance.

The Hon. Peter Cook
Minister for Industry
Science & Technology
Minister Assisting the
Prime Minister for
Science
The Senate, Parliament
House
Canberra, ACT 2600
FAX (06) 277 3387

The Hon. Simon Crean
Minister for
Employment
Education and Training
Parliament House
Canberra, ACI' 2600
FAX (06) 273 4117

The Hon. Paul Keating
Prime Minister
Parliament House
Canberra, ACT 2600
FAX (06) 273 4100

The National Register of Biologists is now established, registering all biologist who wish to help by providing advice or coaching the team members.

National Register of Biologists

If you are able to help please fill in the form below and send to Dr Lynne Selwood, President, Victorian Cell Biology Society, Zoology Dept. La Trobe University, Bundoora Victoria 3083 Australia. Tel.: (03) 479 2239. FAX: (03) 479 1551. Email: zools@zoom.latrobe.edu.au

We need to know your

Name	Address	Telephone	FAX.	Email	Area of expertise

ARTICLES

WETLANDS AND CHANGE IN ECOLOGICAL CHARACTER

Not all Australian limnologists may know a great deal about the operation of the Ramsar Convention. This is hardly surprising given the higher public profile of World Heritage and Biodiversity. However, there is a very good opportunity to change this with the next conference of the Convention being held in Brisbane from 19-27 March 1996. The conference will deal with many administrative matters as well as technical issues and will also celebrate the 25th anniversary of the meeting in the Iranian town of Ramsar where the conference text was agreed. It is perhaps fitting that Australia is hosting this conference as it was the first Contracting Party to the Convention in 1974. (If you would like more information on the Convention and listed sites in Australia a good contact is Bill Phillips from ANCA in Canberra - fax 06-2500384, phone 06-2500777.)

One of the technical issues that will be discussed in the 1996 conference is ecological change on Ramsar sites. These sites are listed as internationally important but many continue to undergo adverse ecological change. In many instances the reasons for ecological change have been identified. You may not be surprised to learn that they are basically similar around the globe and include the usual sad list of drainage, infilling, pollution and eutrophication, afforestation and deforestation, hydrological regulation etc. Interestingly, in various workshops and meetings the discussions have moved to the underlying reasons for adverse ecological change: political, social and economic factors. To prevent further adverse change or to recoup past losses the real effort needs to be directed at the political, social and economic forces that shape our everyday life.

Given that wetlands are still being lost and degraded what role is there for limnologists? In terms of biodiversity and biodisparity* we can still identify and describe. In terms of ESD we can distinguish values and functions. In terms of climate change we can identify vulnerable habitats and uses. In terms of management we can develop monitoring strategies and action plans. All these things are undoubtedly needed as part of the "big picture" but are they the real priorities? Will high quality and well funded science of this nature help to resolve the crisis of adverse ecological change in wetlands in Australia and elsewhere? Do we need to reassess our scientific priorities to ensure that we can help?

The Ramsar Convention has provided a vehicle for discussing the issues, but responsibility for environmental management in individual countries does not rest with the Convention. Nor does it rest solely with our nature conservation

agencies. In dealing with wetlands we need to address the key hydrological features, we need to have a handle on the biodiversity and biodisparity, we need to consider migratory species and we even need to develop GIS linked inventory systems. We also need to restore and even create wetlands. Thus we need basic science. However, basic science does not matter a damn if it is not taken up and used by wetland managers and owners and regional planners. Do we have the mechanisms in place to ensure that this happens? Are we efectively building on the impetus generated by programs such as landcare and waterwatch and involving the local community in making decisions about their own backyards?

World-wide it is acknowledged that sectoral structures impede effective management of wetlands and that we often do not make enough use of existing information when we do manage. It is also acknowledged that local communities need to be freed from excessive control of central agencies. These same local communities are also often far removed from the scientific community and even regard scientists and professional conservationists as "armchair experts" out of touch with everyday reality. Therefore, if our scientific knowledge is to be used to prevent further adverse ecological change in our remaining wetlands how do we cross this divide? Our European forebearers showed great endeavour to cross the Great Divide between Sydney and the rest of Australia, can we show the same endeavour to ensure our scientific knowledge is useful and used by those with the best chance of preventing further ecological deterioration in our valued (?) wetland resources? Can our science help save wetlands NOW? Can our scientists help save wetlands NOW? We would like to think YES, but do we need to answer Margaret Brock's questions (ASL Newsletter Vol 32 No 2) with a little more thought? To remind you "Do you have an active or passive attitude to your role as a limnologist? Would you want to change this?"

Max Finlayson
Head of Wetland Management
ERISS, Jabiru, NT

* Biodisparity - the range of morphologies or other attributes within a clade or within a local or regional subsample of a clade.

CALLS FOR HELP

The following letter was recieved from the Comité Pro-Defensa del Rio Saldaña in Columbia, South America.

Dear ASL

The government of the previous President of Columbia, Dr Cesar Gaviria, signed (five days before ending its term), two contracts with the company Mineros el Dorado, to mine gold. The gold is to be mined from the Saldaña River, in the county of Ataco, in the state of Tolima, Columbia.. For this purpose they will use a "cangilone" dredge that has a 3000 ton weight capacity and a 10000 m^3/day material removal capability. The dredging will be done up to 21 metres in depth on the bed of the river as well as on its riverside.

With such exploitation the ecosystem of the Saldaña River Basin will be completely destroyed, producing course changes and avalanches. This will endager the Indian communities, (descendants of the PIJAO INDIANS) that live along the right side of the river. The exploitation will also affect the quality of the water of many villages and cities in Columbia.

The Saldaña River flows into the Magdalena River. The Magdalena River is second in importance after the Amazon River. It crosses the country of Columbia from south to north. It is now receiving all the sediment and pollution that is being produced by the present exploitation done by excavating machines.

The destruction, pollution and sedimentation that the huge "cangilone" dredge will produce, will affect the entire country. This dredge is already being built and it will soon start functioning.

We are pleading for your valuable cooperation, that could begin by sending a letter from your organisation to: Dr Ernesto Samper Pizano
President of the Republic of Columbia
Palacio de Narino
Santafe de Bogota, Columbia, Sur America

with a copy to: Angel Maria Caballero L.
Director
Comite Pro-Defensa del Rio Saldaña
A.A. 1679 Ibagué (Tol.) Columbia, Sur America.

ASL VOLUNTEERS

The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

Dr Richard Marchant (ASL Secretary)
Phone: 61-3 284 0218
Fax: 61-3 416 0475
Email: rmarch@pioneer.mov.vic.gov.au

Name	Area of Expertise	Phone
Prof. A.Arthington	in-stream flows, ecology of exotic fishes,conservation of rare fishes	
Dr P.Boon	bacteriological issues, wetlands	03-3652214
Dr A.Boulton	intermittent streams, hyporheic zones, Flinders Ranges streams	067-733760
Dr M.Brock	temporary wetlands, aquatic plants	067-732578
Dr S.Bunn	stream ecology, ecology of riparian zones, biomonitoring	07-8757407
Dr G.Closs	ecology and conservation of freshwater fish, upper Murray River	
Dr M.Finlayson	wetlands, Ramsar convention	
Dr T.Grant	platypus biology	
K.Hortle	impact of mining, impact of development in SE Asia and PNG on rivers	03-8742597
Dr P.Horwitz	conservation of freshwater invertebrates	09-4055558
Dr P.Humphries	fish ecology, in-stream flows	060-431002
Dr J.John	blue-green algal blooms in WA, artificial wetlands	
Dr P.S.Lake	stream ecology, conservation of freshwater biota	03-9055653.
Dr R.Pearson	tropical freshwater ecology	077-814262
J.Puckridge	ecology of arid zone rivers, ecology of freshwater fish	08-3034455
Dr N.Rea	hydrology of wetlands, aquatic plants, constructed wetlands	02-5514425
Dr L.Townley	groundwater - surface water interactions	09-3870329
A/Prof K.F.Walker	Murray - Darling basin rivers	08-3035595
Prof. W.D.Williams	salt lakes	08-3034455

BOOK REVIEWS

FLORA OF NEW ZEALAND: DESMIDS. VOLUME III.

By H. Croasdale, E.A. Flint and M.M. Racine, pp. i-x, 1-218; 84 plates of line drawings, 9 plates of habitats. Manaaki Whenua Press, Landcare Research, Christchurch, New Zealand. NZ$60.00 including packaging & postage [$150 for the three volumes].

Reviewed by:Tim Entwisle, Royal Botanic Gardens, Melbourne.
[Entwisle@botany.unimelb.edu.au]

Hannah Croasdale and Elizabeth Flint, assisted in this volume by Marilyn Racine, have produced another informative and beautifully designed book to complete their 3-volume guide to the desmids of New Zealand. Keys and descriptions are provided for 262 taxa, predominantly in *Staurastrum* (169 taxa) and *Staurodesmus* (61 taxa) but also including nine genera of filamentous desmids. As with previous volumes there are extensive notes on the sampling stations (16 of them featured in colour photographs) and crystal-clear line drawings for all taxa (in this case 85 full-page plates). A handy addition to this volume is a series of text-figures showing the bizarre diagnostic features of species in *Staurodesmus* and *Staurastrum*.

As with the second volume, biographical sketches (those of W. & G.S. West and F.E. Fritsch being particularly apt for this culminating volume) are sprinkled through the opening pages and provide a wonderful means of relaxing the reader before he or she meets the desmid key. However, the detailed listing of sampling stations (31 pages in all) seems excessive, even for the local market and particularly in view of it being repeated in its entirety in each volume. The taxonomic section is well presented and once again includes a key to all desmid genera in New Zealand. Following some brief concluding remarks a series of tables is used to show endemism and comparative distribution of New Zealand desmid genera. Addenda include information about Professor E. Percival's 1935-1937 collections, Dr R. Lenzenweger's 1991 collections, details of all collectors mentioned in the flora, and a corrigenda for the first two volumes. All together, the book is a satisfying and comprehensive collation of more than a century's collecting and study in New Zealand.

It is only when we step beyond this brief that I have some misgivings. This is not a revisionary work. Illustrations are taken mostly from overseas texts and do not generally represent the full morphological range of the taxon. Taxa are

often retained when doubtfully distinct. Characters known to be highly plastic are still used in keys. In a recent study on the *Staurastrum manfeldtii* complex (mentioned in the text as coming to the author's notice too late to be included), Coesel (1992) concluded that the length and direction of cell processes appear phenotypically determined to a high degree. The changes proposed in that paper would result in four or five taxa in this guide being reduced to one. More importantly, however, are the broader consequences of such studies. As more desmids are studied in culture *and* in temporally and spatially separated field samples, more characters are found to be taxonomically useless. Floras such as this are therefore misleading in terms of true diversity.

Biogeographic statements based on floristic summation can be also deceptive. Although the completion of this desmid floraphy in a modern context. Until phylogenetic relationships are unravelled and biogeographic statements are based on taxon relationships (rather than on numbers of shared taxa) any hypothesized origins of the New Zealand desmid flora will remain armchair conjecture. Similarly, conjectures about polyphyly (and paraphyly) of taxa need to be tested phylogenetically. The admittedly artificial genus *Staurastrum* needs both a phenetic and phylogenetic overhaul before we can make sense of the vast morphological diversity trapped within. The recognition of *Staurodesmus* and *Desmidium* follows Teiling's well-argued attempt to resolve *Staurastrum s.lat.*, but is thought by some authors to result in yet more polyphyletic taxa.

Such criticism in not directed at the authors of this book. Their wonderful achievement makes possible (and I think necessary) these sort of reflections. Croasdale, Flint and Racine have built a solid base for our future studies in the systematics, ecology, biogeography, conservation and management of freshwater algal communities in New Zealand. Without such foundations, we would sink like a stone.

Coesal, P.F.M. (1992) The *Staurastrum manfeldtii* complex (Chlorophyta, Desmidiaceae): morphological Variability and taxonomic implications. *Arch. Hydrobiol. Suppl. (Algological Studies)* **67**: 69-83.

THE RIVERS HANDBOOK, VOLUME 2.

Edited by P.Calow and G.E.Petts, pp i-xii, 1-523; 1994, Blackwell Scientific Publications, Oxford. $272

Reviewed by Richard Marchant, Museum of Victoria, Melbourne.

I reviewed the first volume of this two volume work in the March 1993 newsletter. The first volume covers hydrological and ecological principles (the latter incompletely, in my view). The second volume aims to put these principles into practice. This volume was given the subtitle: "Rivers: perspectives for ecologically sensitive management", in the first volume. But this subtitle has, strangely, not survived in the final publication. Like the first, the second volume is a reference book that will be bought by libraries rather than individuals.

This volume is divided into five parts: (1) perturbations and biological impacts (5 chapters); (2) monitoring programmes (3 chapters); (3) modelling: forecasting and prediction (6 chapters); (4) management options (8 chapters); (5) case studies (3 chapters). The standard of production and illustration is very high, as in the first volume, and there is good cross-referencing between chapters both within this volume and between the two volumes.

I cannot claim to have read every chapter; but what I read impressed me and generally lived up to the promise of the abandoned subtitle. I paid most attention to parts 1 and 2. Part 1 includes chapters on river pollution, hyrological change, river channel change, and system (biotic community) recovery, along with a chapter that summarises some major themes from volume 1: river classification; longitudinal, lateral and vertical fluxes; hydrology and geomorphology; food webs; retention and delivery characteristics; rivers as systems characterised by change. This last chapter is, I think, especially useful for river managers, who need concise overviews of such matters. It also makes the important points that an historical legacy of disturbance often constrains what can be done and that management needs to be flexibile so that "the best option can be revised once new knowledge is available".

Part 2 tackles statistical aspects of spatial and temporal monitoring, water quality monitoring and biological water quality assessment using macroinvertebrates. These chapters serve as excellent starting points for anyone interested in these fields.

Part 3 encompasses hydrology and climate change, modelling hydrological processes, water quality modelling, sediment transport, prediction of biological

responses, and evolution of instream flow habitat modelling. The last two topics will be of particular interest to river biologists in Australia in these days of minimum flow requirements and the Monitorong River Health Initiative of the Commonwealth EPA. The need to be able to predict the biological state of a lotic habitat is well argued using examples of modern techniques, e.g. RIVPACS (River InVertebrate Prediction and Classification System) from the UK.

Aspects of river management are covered in part 4 (the longest part of the book): flow allocation, control rules for regulating reservoirs, water quality controls, river engineering, macrophyte management, role of hatcheries and fish stocking, rehabilitation of river margins, restoration of river corridors. These topics span many of the currently practised types of river management. River biologists need to know about these matters in the sort of detail given here.

The final part of the book contains case studies for three river systems: the Upper Mississippi, the River Laxa in Iceland and dryland rivers in South Africa and Australia. These chapters stress the historical nature of management, the site specific complexities of management (e.g. ice build up in the River Laxa) and the difficulties in extrapolating ecological theories from well watered temperate regions to arid and semi-arid areas. As temperate regions have been emphasised in both volumes, it is valuable to see cold and dry ecosystems also being considered.

My overall impression is that this book provides a comprehensive picture of a rapidly developing field of limnology. Both those engaged in biological research on rivers and those who manage these ecosystems will learn from it. As it is only natural that the two volumes will be treated as one work, my advice is spend your time reading volume 2.

THESES

(Departments wishing to publish titles of completed postgraduate theses should send lists to the Editor)

List of Postgraduate Theses from the Department of Environmental .... Griffith University, Nathan Queensland.

YEAR	STUDENT	TITLE OF DISSERTATION	SUPERVISOR
HONOURS			
1987	M. Mortimer	Effects of the insecticide abate on genetic structure of mangrove crab populations	JaneHughes
1989	P. Schmidt	Reproductive strategy and genetic variation in mangrove gastropods	Jane Hughes
1991	B.Kerby	Aspects of invertebrate drift in a rainforest stream.	Stuart Bunn Jane Hughes
	B. Christensen	Comparative study of multivariate techniques and their applicability to the analysis of Enviromnental data.	Stuart Bunn Janet Chaseling
	P. Turner	Influence of fish predation on stream invertebrate communities.	Stuart Bunn
1992	S. Schmidt	Gene flow and dispersal among *Baetis* populations.	Jane Hughes
1993	M. Kingston	Gene flow and dispersal in *Paratya,* a freshwater shrimp.	Jane Hughes Stuart Bunn
M. PHIL			
1987	G. Shaw	Factors influencing concentrations of PCB's in urban roadside ecosystem.	Des Connell
	R. Whalley	Laboratory investigation of sediment erosion, transport and deposition processes.	Calvin Rose
1988	A. Wright	A basis for integrating biological and chemical controls of Water Hyacinth.	Angela Arthington
1990	P. Cosser	Concentration--Flow relationships and loads of phosphorus in the South Pine River, South East Queensland.	Des Connell
	D. Parsons	Instrumentation system for overland flood flow analysis.	Calvin Rose
	P. Thorburn	Intrepretation of solute dynamics in irrigated soils.	Calvin Rose
1991	M. Cullen	Aspects of the Behaviour of Chlorinated Hydrocarbon pesticides in terrestrial and aquatic environments.	Des Connell

YEAR	STUDENT	TITLE OF DISSERTATION	SUPERVISOR
1992	S. Kitheka	Evaluation of kinetic runoff theory and its application in calculating infiltration rates.	Calvin Rose
	Y. Koestoer	Bioaccumulation of polycyclic aromatic hydrocarbons by earthworms. An application of three phase partition model	Des Connell
1993	B. Fentie	Application of a physically-based erosion model in the design of soil and water conservation structures for semi-arid non- mechanised agriculture.	Calvin Rose
	R. Kenyon	Habitat selection in two species of Tiger Prawn in the Gulf of Carpentaria.	Jane Hughes
PhD			
1987	S. Hairsine	Numerical and analytical solutions of the kinematic approximation for flows over surface elements.	Calvin Rose
1989	C. Lovell	Measurement of particle settling velocity.	CalvinRose
1990	P. Hairsine	A physically based model of the erosion of cohesive soils.	Calvin Rose
1991	S. Kayal	Field and laboratory investigations on occurrence and partitiioning behaviour of the polycyclic aromatic hydrocarbon (PAHs) in an estuarine system.	Des Connell
1992	B. Congdon	Significance of gene flow in mosquito fish, *Gambusia affinis.*	Jane Hughes
	R. Pallis	Soil erosion processes and nutrient loss.	Calvin Rose
	N. Phillips	Potential of genetic structure of mussel populations as a pollution monitor.	JaneHughes
	M. Warne	Mechanism and prediction of the non-specific toxicitv of individual compounds and mixtures.	Des Connell
1993	A. Anderson	Nutritional requirements of Silver Perch, *Bidyanus bidyanus.*	Angela Arthington
	M. Millicich	Light traps: a novel technique for monitoring larval supply and replenishment of coral reef fish populations.	Angela Arthington
1994	Graham Kingston	Geohydrology of soil and water salinity in the Maryborough Basin.	Calvin Rose

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1987

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